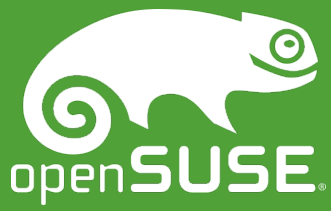
openQA

features – capabilities – bugs

Ondrej Holecek /*aaannz*/
oholecek@suse.com



What makes openQA

User focused

- Watching the screen

User focused

- Watching the screen
- Keyboard and mouse input

User focused

- Watching the screen
- Keyboard and mouse input

→ Virtually limitless test scenarios

Wide range of SUTs

- Virtual machines FTW!
  - QEMU (x86_64, ARM), libvirt, PowerVM, s390

Wide range of SUTs

- Virtual machines FTW!
  - QEMU (x86_64, ARM), libvirt, PowerVM, s390
- Reality still real though
  - IPMI, ADDERLink

AI breeding ground (aka multi-machine)

- Serial dependency

AI breeding ground (aka multi-machine)

- Serial dependency
  - validation test jobs
  - test job preparing environment for others

AI breeding ground (aka multi-machine)

- Serial dependency
  - validation test jobs
  - test job preparing environment for others
- Parallel dependency

AI breeding ground (aka multi-machine)

- Serial dependency
  - validation test jobs
  - test job preparing environment for others
- Parallel dependency
  - client-server scenarios
  - High-Availability testing

AI breeding ground (aka multi-machine)

- Serial dependency
  - validation test jobs
  - test job preparing environment for others
- Parallel dependency
  - client-server scenarios
  - High-Availability testing

→ openQA scheduler does the job management

“Is There Anybody Out There?”

- QEMU user networking
  - no SUT-SUT communication
  - no inbound access
  - outbound access allowed

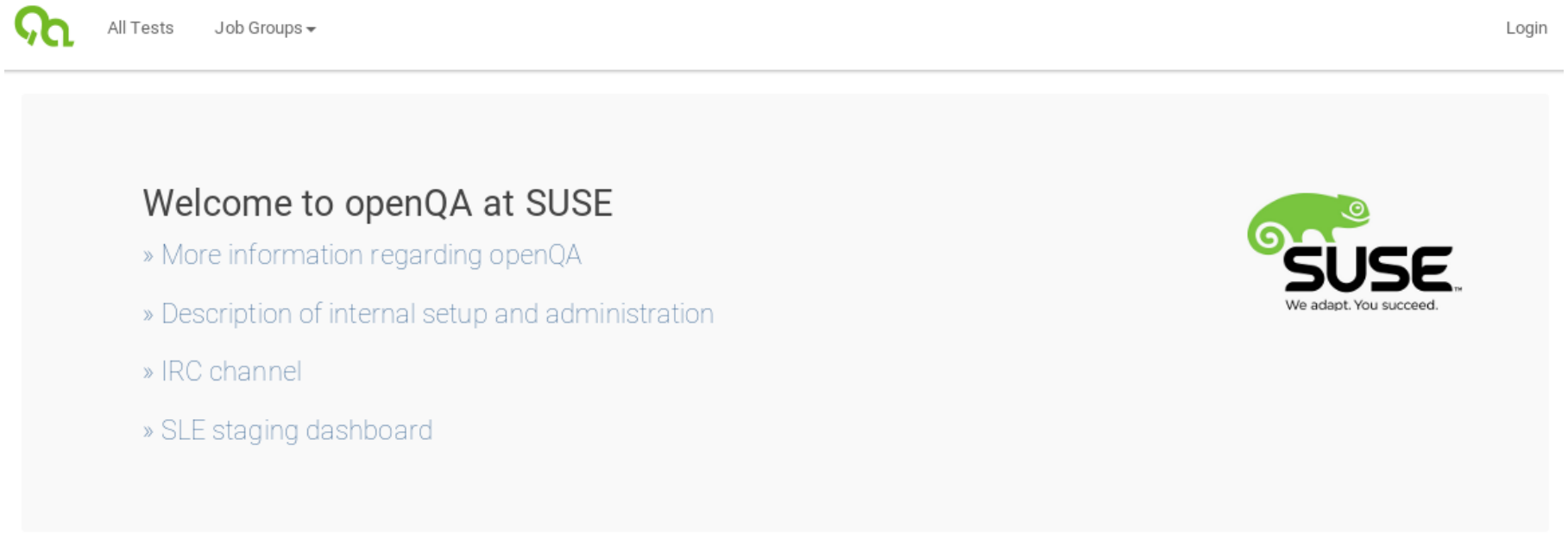
“Is There Anybody Out There?”

- QEMU user networking
- TAP devices
  - manual configuration required
  - all-you-can-do

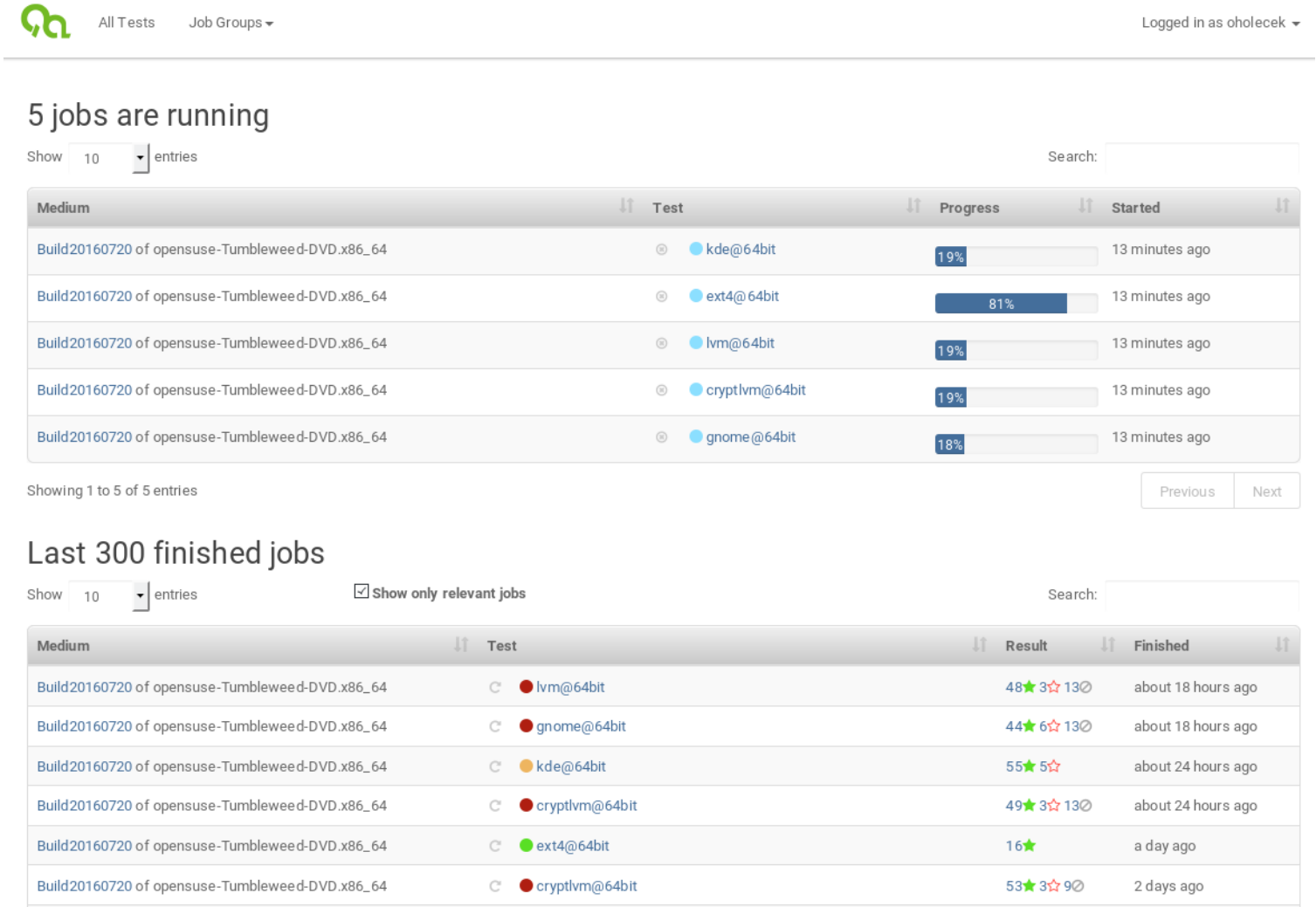
“Is There Anybody Out There?”

- QEMU user networking
- TAP devices
- Open vSwitch
  - initial configuration required
  - dynamically creates network for MM tests
  - SUT-SUT communication
  - allows network between worker nodes

Shiny user interface



Shiny user interface

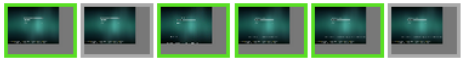


Shiny user interface

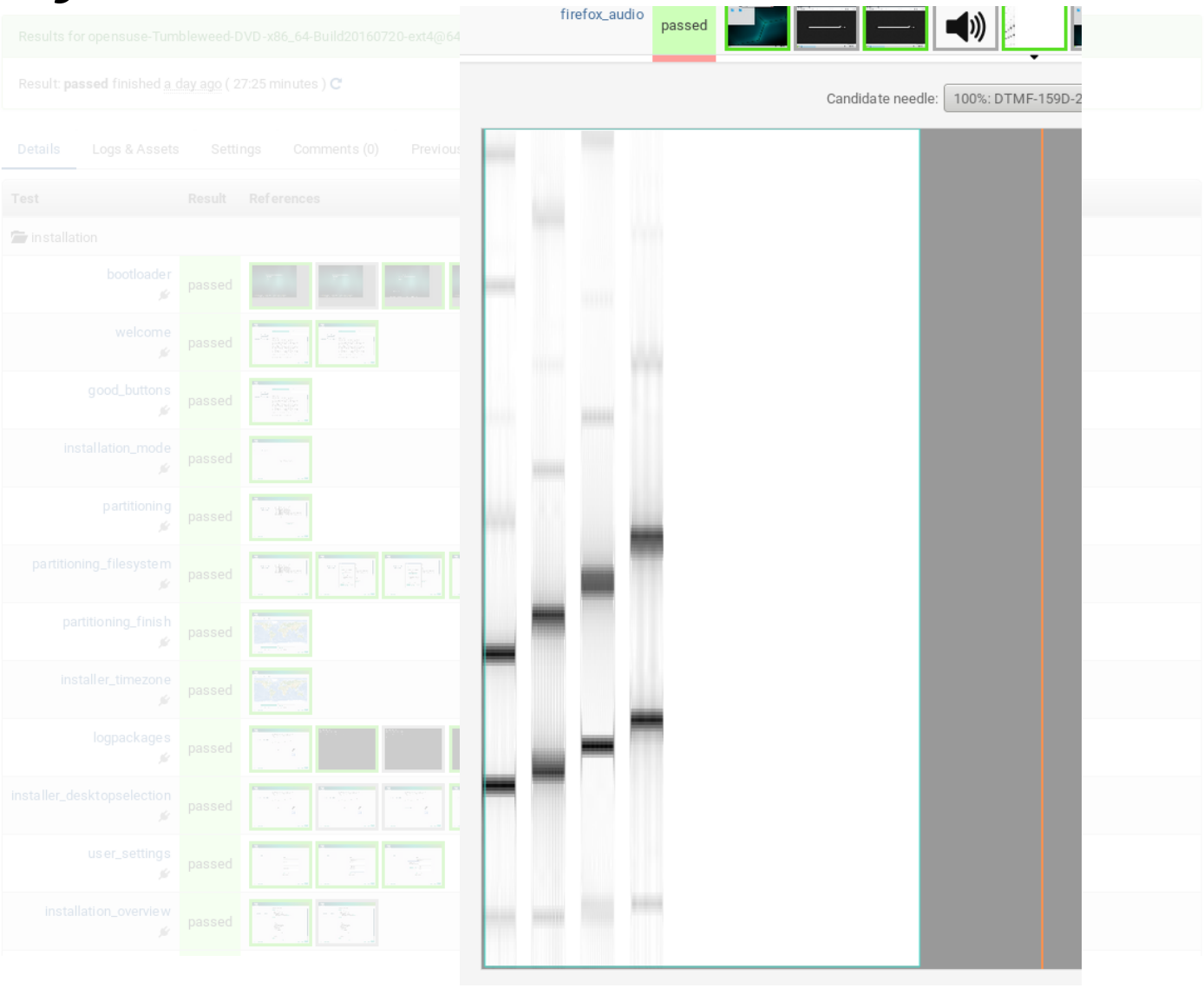
Results for opensuse-Tumbleweed-DVD-x86_64-Build20160720-ext4@64bit

Result: **passed** finished a day ago (27:25 minutes)

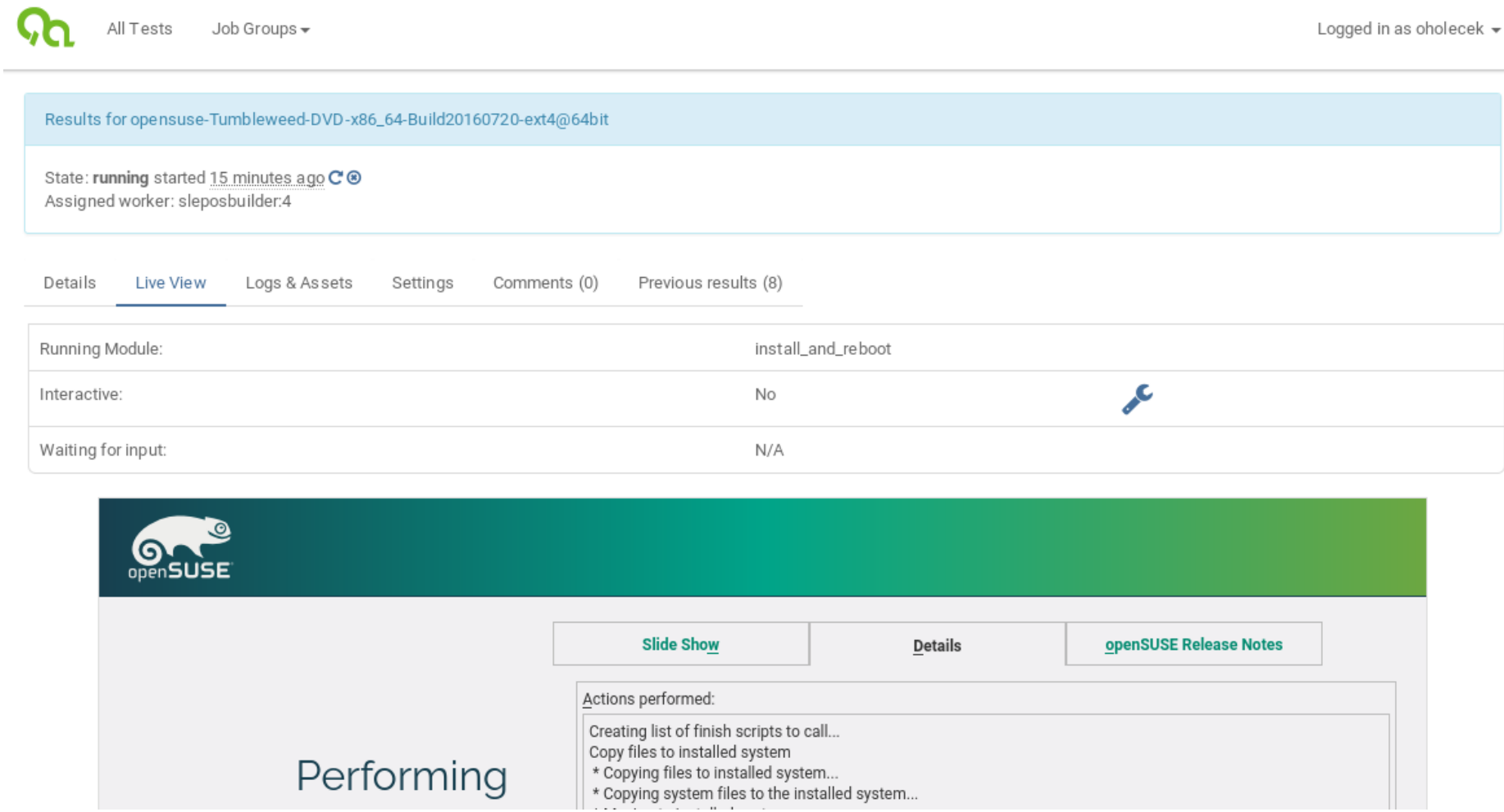
Details | Logs & Assets | Settings | Comments (0) | Previous results (7)

Test	Result	References
installation		
bootloader	passed	
welcome	passed	
good_buttons	passed	
installation_mode	passed	
partitioning	passed	
partitioning_filesystem	passed	
partitioning_finish	passed	
installer_timezone	passed	
logpackages	passed	
installer_desktopselection	passed	
user_settings	passed	
installation_overview	passed	

Shiny user interface



Shiny user interface



Shiny user interface

Results for opensuse-Tumbleweed-DVD-x86_64-Build20160720-kde@64bit

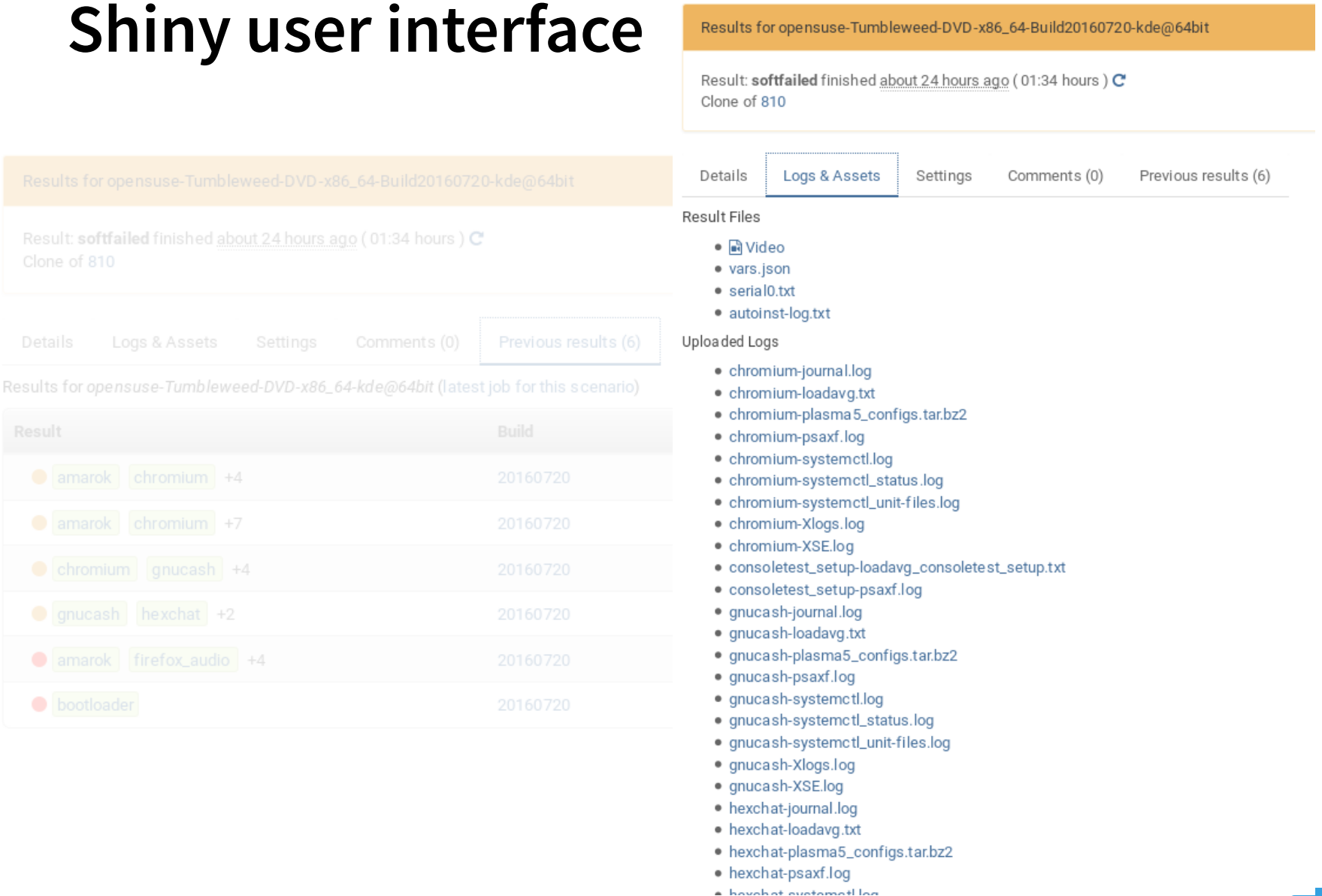
Result: **softfailed** finished about 24 hours ago (01:34 hours)
Clone of 810

Details | Logs & Assets | Settings | Comments (0) | Previous results (6)

Results for *opensuse-Tumbleweed-DVD-x86_64-kde@64bit* (latest job for this scenario)

Result	Build	Finished
amarok chromium +4	20160720	2 days ago (01:46 hours)
amarok chromium +7	20160720	3 days ago (01:54 hours)
chromium gnucash +4	20160720	about a month ago (01:47 hours)
gnucash hexchat +2	20160720	about a month ago (01:38 hours)
amarok firefox_audio +4	20160720	2 months ago (01:34 hours)
bootloader	20160720	2 months ago (00:34 minutes)

Shiny user interface



Shiny user interface

Results for sle-12-SP2-Server-DVD-x86_64-Build2122-sles12_qa_userspace_apparmor_profiles@64bit

Result: **failed** finished 17 minutes ago (07:59 minutes)
Clone of 568042

Details | Logs & Assets | Settings | Comments (1) | Previous results (10)

rpalethorpe wrote 17 minutes ago

bsc#994855

(Automatic takeover from t#524336)

Shiny user interface

openQA tests

There’s more than one way to do it

openQA tests

There’s more than one way to do it, but sometimes consistency is not a bad thing either

“You can't ever go wrong with perls.”

- Yes, it’s perl

“You can't ever go wrong with pearls.”

- Yes, it’s perl
- openQA test = test code + test loader + needles

openQA test loader

- ‘main.pm’
- loads individual modules
- maintains test order

```
loadtest "installation/welcome.pm";
if (get_var("MULTIPATH")) {
  loadtest "installation/multipath.pm";
}
loadtest "installation/good_buttons.pm";
if (get_var('ENCRYPT_CANCEL_EXISTING') || get_var('ENCRYPT_ACTIVATE_EXISTING')) {
  loadtest "installation/encrypted_volume_activation.pm";
}
if (noupdatestep_is_applicable() && !get_var("LIVECD")) {
  loadtest "installation/installation_mode.pm";
}
if (!get_var("LIVECD") && get_var("UPGRADE")) {
  loadtest "installation/upgrade_select.pm";
  loadtest "installation/upgrade_select_opensuse.pm";
}
if (noupdatestep_is_applicable() && get_var("LIVECD")) {
  loadtest "installation/livecd_installer_timezone.pm";
}
if (noupdatestep_is_applicable()) {
  loadtest "installation/partitioning.pm";
```

test code

- openQA/os-autoinst APIs
  - testapi
  - mmapi
  - lockapi

```
sub run() {
  my $self = shift;
  # NET isos are slow to install
  my $timeout = 2000;

  # workaround for yast popups
  my @tags = qw/rebootnow/;
  if (get_var("UPGRADE")) {
    push(@tags, "ERROR-removing-package");
    push(@tags, "DIALOG-packages-notifications");
    $timeout = 5500;   # upgrades are slower
  }
  # SCC might mean we install everything from the slow internet
  if (check_var('SCC_REGISTER', 'installation')) {
    $timeout = 5500;
  }
  my $keep_trying = 1;
  while ($keep_trying) {
    # try gracefully on aarch64 because of boo#982136
    if (check_var('ARCH', 'aarch64')) {
      my $ret = check_screen \@tags, $timeout;
      if (!$ret) {
        die 'timed out installation even after retrying' unless $keep_trying;
        record_soft_failure 'boo#982136: timed out after ' . $timeout . 'seconds, tryin
        $keep_trying = 0;
        next;
      }
    }
    else {
      assert_screen \@tags, $timeout;
    }
```

test code

- openQA/os-autoinst APIs
  - testapi
  - mmapi
  - lockapi
- whatever you want
  - just don’t forget to die when appropriate

```
sub run() {
  my $self = shift;
  # NET isos are slow to install
  my $timeout = 2000;

  # workaround for yast popups
  my @tags = qw/rebootnow/;
  if (get_var("UPGRADE")) {
    push(@tags, "ERROR-removing-package");
    push(@tags, "DIALOG-packages-notifications");
    $timeout = 5500;   # upgrades are slower
  }
  # SCC might mean we install everything from the slow internet
  if (check_var('SCC_REGISTER', 'installation')) {
    $timeout = 5500;
  }
  my $keep_trying = 1;
  while ($keep_trying) {
    # try gracefully on aarch64 because of boo#982136
    if (check_var('ARCH', 'aarch64')) {
      my $ret = check_screen \@tags, $timeout;
      if (!$ret) {
        die 'timed out installation even after retrying' unless $keep_trying;
        record_soft_failure 'boo#982136: timed out after ' . $timeout . 'seconds, tryin
        $keep_trying = 0;
        next;
      }
    }
    else {
      assert_screen \@tags, $timeout;
    }
```

needles

- picture
  - screenshot from SUT
  - generated image
  - ...

needles

- picture
  - screenshot from SUT
  - generated image
  - ...
- JSON metadata
  - match areas
  - needle tags
  - ...

```
{
 "area": [
  {
   "ypos": 149,
   "height": 456,
   "width": 933,
   "type": "match",
   "xpos": 49
  }
 ],
 "properties": [],
 "tags": [
  "needle_in_heystack",
 ]
}
```

support for text based tests

- monitoring SUT serial port
- matching against regexp(s)
- included in testapi

Live demo

Questions?

Contacts

- irc://chat.freenode.net/opensuse-factory
- mailto: opensuse-factory@opensuse.org
- git@github.com:os-autoinst/openQA
- git@github.com:os-autoinst/os-autoinst
- git@github.com:os-autoinst/os-autoinst-distri-openSUSE
- https://progress.opensuse.org/projects/openqav3

Join the conversation,
contribute & have a lot of fun!
www.opensuse.org

Thank you.

License

This slide deck is licensed under the Creative Commons Attribution-ShareAlike 4.0 International license. It can be shared and adapted for any purpose (even commercially) as long as Attribution is given and any derivative work is distributed under the same license.

Details can be found at https://creativecommons.org/licenses/by-sa/4.0/

General Disclaimer

This document is not to be construed as a promise by any participating organisation to develop, deliver, or market a product. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. openSUSE makes no representations or warranties with respect to the contents of this document, and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. The development, release, and timing of features or functionality described for openSUSE products remains at the sole discretion of openSUSE. Further, openSUSE reserves the right to revise this document and to make changes to its content, at any time, without obligation to notify any person or entity of such revisions or changes. All openSUSE marks referenced in this presentation are trademarks or registered trademarks of SUSE LLC, in the United States and other countries. All third-party trademarks are the property of their respective owners.

Credits

Template
Richard Brown
rbrown@opensuse.org

Design & Inspiration
openSUSE Design Team
http://opensuse.github.io/branding-guidelines/